(2) claims 12, 13, 15, 16, and 19 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,980,622 (Byers) in view of U.S. Pat. No. 6,001,161 (Evans) and U.S. Pat. No. 5,670,349 (Tanuma).

Applicants have amended the claims by canceling the previously pending claims and providing new claims in accordance with specific species that are supported by the specification. The claimed species are within the scope of originally filed independent claim 11. No new matter has been added by virtue of this amendment, and a new search is not thought necessary as the scope of all of the new claims are believed to be entirely within the scope of originally filed claim 11. These specific species are believed to be novel and nonobvious over the prior art of record, as will be described in more detail below.

REJECTIONS UNDER 35 U.S.C. 102

Rejections of claims 11, 14, 17, 18, and 20 under 35 U.S.C. 102(b)

The claims rejected under 35 U.S.C. 102(b) have been cancelled, and have been replaced with new claims drawn to several species that are supported by the specification. Thus, the arguments against allowance of the claims previously rejected under 35 U.S.C. 102(b) are believed to be rendered moot, and the rejection is respectfully requested to be withdrawn. However, further discussion will follow as to why the new claims are believed to be novel over the prior art of record.

REJECTIONS UNDER 35 U.S.C. 103(a)

Rejection of claims 12, 13, 15, 16, and 19 under 35 U.S.C. 103(a)

The claims rejected under 35 U.S.C. 103(a) have been cancelled, and have been replaced with new claims drawn to six species that are supported by the specification. Thus, this rejection is believed to have been rendered moot. However, further discussion will follow as to why the new claims are believed to be nonobvious.

NOVELTY AND NONOBVIOUSNESS OF NEW CLAIMS 21-29

New claim 21 provides a species that is within the scope of cancelled claim 12. Support for the amendment is found in the specification in Formula 3, on page 15. New claim 22 is dependent on new claim 21, and further defines the ink-jet ink that is used to form the image. Support for this amendment can be found in the specification on page 18, lines 21-25.

In rejecting claim 12 under 35 U.S.C. 103, the dyes recited in the claims were indicated as obvious over Byers in view of Evans and Tanuma. The Byers reference describes dyes that are substituted naphthalenes. Evans shows a general formula directed to metalized heterocyclylazo- hydroxyquinoline-containing dyes. Tanuma describes a thio-substituent coated porous media substrate.

As Evans is the only reference that specifically recites the use of a pyridine-, azo-, and quinolinol-containing dye, specific attention will be directed toward this reference as it relates to new claims 21-28. Evans recites a formula (1) in column 2, lines 32-45 that can be a pyridine-, azo-, and quinolinol-containing dye. Further, column 2, line 47 to column 3, line 17 recites a laundry list of possible pendant groups that can be substituted onto the various ring structures at various locations. The laundry list includes aryl-, halogen-, and carboxyl- groups, to name a very few.

Although these moieties are listed within the group of possible configurations, there is no further identification within the Evans specification that would suggest using the very specific combination of functional groups at the identified positions as depicted and claimed in claim 21. Claim 21 specifically identifies the carboxyl group as being para on the pyridine group with respect to the azo group. Further, on the quinolinol group, the functional groups are 2-chloro- and 4-phenyl-. Additionally, the ligand to nickel molar ratio is 2:1. Evans identifies a number of molecular configurations, but does not exemplify or even suggest a particular dye structure that is similar to the instant invention recited in claim 21. In other words, while Evans does include the substituents in a laundry list, there is never any suggestion to produce the exact molecular structure in claim 21 of the instant invention.

A reading of Evans shows an enormous number of possible moieties that could be substituted anywhere on the heterocyclylazo hydroxyquinoline. It would require an undue amount of experimentation to arrive at the specific chemical configuration of the instant invention recited in claim 21. In *Dow Chem. Co.*, the Court has indicated that a rejection of obviousness is not appropriate when based on obvious to try or obvious to experiment. See *Dow Chem. Co. v. American Cyanamid Co.*, 816 F.2d 617, 622, 2 U.S.P.Q.2d 1350, 1355 (Fed. Cir. 1987). Even with Evans in hand, the skilled artisan would be required to test all of the possible permutations to determine that the dye recited in claim 21 is valuable, let alone functional. The large magnitude of possibilities precludes the ability of the chemical structure of claim 21 to be rendered obvious.

Furthermore, the Applicants assert that the combination of Byers, Evans, and Tanuma as references for obviousness purposes can only be made by first looking at the instant invention and then using improper hindsight. See *Yamanouchi*

Pharmaceutical Co., Ltd. v. Danbury Pharmacal, Inc.,231 F.3d 1339, 56 U.S.P.Q.3d 1641 (Fed. Cir. 2000). The Court has explicitly condemned the use of hindsight to modify or combine prior art references to arrive at the instant invention. There is no reason to combine Byers and Evans. The distinct prior art references are directed to chemically different dyes. While both references identify ink-jet compositions, only improper hindsight would suggest the combination of distinct naphthalene and hydroxyquinoline dye references. A reading of Evans does not suggest Byers, and a reading of Byers does not suggest Evans. The fact that the Applicants put these two dyes together in a single application is irrelevant. The use of the Applicants own disclosure to make this connection is precluded, as it constitutes impermissible hindsight analysis. Additionally, there is nothing in Byers that suggests the relevance of Tanuma. Tanuma teaches the solution to providing recording media with excellent ink absorptivity and fixing characteristics to prevent color-fading. As such, this reference is not believed to be relevant to the new claims.

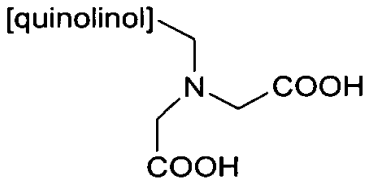
Claim 22, which depends from claim 21, further recites an ink-jet ink preparation process that is neither taught, nor suggested by prior art. As such, claims 21 and 22 are believed to be allowable.

New independent claims 23-24 each claim a specific species that falls within the scope of cancelled claim 12, wherein specific dyes are used in ink-jet inks to form an image. The specific chemical structures are supported by the specification in Formulas 4 and 5, respectively, on page 16. Also, the claims further define the ink-jet ink as being prepared by raising the pH to solubilize the inks, and then lowering the pH to form the final product. Support for this amendment can be found in the specification on page 18, line 21-25.

As stated under the analysis of new claim 21, claims drawn generally to images printed with pyridine-, azo-, and quinolinol-containing dye-based ink-jet inks were rejected as obvious. The ink compositions that can be used in the invention in claims 23 and 24 are limited by the manner in which the inks are formulated. In these claims, the ink-jet inks require that the pH be raised for proper nickel metallized dye solubilization, and then reduced to form the final ink products. This distinguishing characteristic is not obvious from the prior art. Therefore, the rejection of claim 12 should not be extended to new claims 23 and 24.

New claim 25 recites a species that falls under the scope of cancelled claim 12, wherein ink-jet ink is used to form an image that comprises a specific dye structure. Support for this amendment can be found in the specification in Formula 6 on page 16. New claim 26 is dependent on new claim 25, which further defines the ink-jet ink that is used to form the image. Support for this amendment can be found in the specification on pg. 18, ln. 21-25.

As stated under the analysis of new claim 21, the pyridine-, azo-, and quinolinol-containing dye-based ink-jet inks as part of a printed image was indicated as being obvious. However, with specific reference to new claim 25, the Evans laundry list of possible moieties substituted into various locations of the dye structure provided (see column 2, line 47 to line 3, line 16 of Evans) does not mention or suggest the presence of the 2-moiety group of the quinolinol group shown in claim 25. Specifically, the following 2-moiety pendant group is not described in Evans as a possible derivative:



As the structure of claim 25 is neither taught nor suggested by any of the cited references, rejections under 35 USC 102 and/or 103 are not thought proper. Additionally, claim 26 recites that the nickel ion is bound to the nitrogen and the two carboxyl groups shown above. This results in the satisfying of the coordination number of the nickel ion. This configuration is neither taught nor suggested by Evans, or any of the other references cited.

New claim 27 recites another species that falls under the scope of cancelled claim 12, wherein ink-jet ink is used to form the image that comprises a specific dye structure. Support for the amendment is found in the specification in Formula 7 on page 17. New claim 28 is dependent on new claim 27, which further defines the ink-jet ink composition that can be used to form the image. This claim is supported in the specification on page 18, lines 21-25.

As stated above in the analysis of new claim 21, the pyridine-, azo-, and quinolinol-containing dye-based ink-jet inks as part of a printed image was indicated as being obvious. Similarly, the Evans laundry list of possible moieties substituted into various locations of the 8-heterocyclylazo-5-hydroxyquinoline could include the substituents recited in new claim 27. While the carboxyl and hydroxyl moieties are listed, the inclusion of each exact substituent and its location was not specified. Since Evans contains an extensive list of possible moieties that can be substituted anywhere on the PAQ framework, it would be impossible to arrive at the instant invention without either undue experimentation or improper hindsight.

New claim 29 recites a species that falls under the scope of cancelled claim 14. The specific dye structure cited in the claim is supported by the specification in Formula 8 on page 17. Unlike claims 21-28, this reference recites a dye having a naphthalene group attached to a pyridine group through an azo bond.

Cancelled claim 14 was identified as being anticipated by Byers. Byers identifies several PAN (pyridine-, azo-, and naphthalene-containing) dyes, and identifies possible substituents and locations of substitution. However, Byers does not identify the substituent substitution required to arrive at that found in new claim 29. Although there are similarities in the chemical structures, the molecule identified and claimed in claim 29 is specific. The closest combination of substituents taught in the Byers reference shows that R5 can be substituted with hydrophilic or hydrophobic moieties. The broad identification of selectable substituents does not identify benzoic acid. Thus, there is nothing in the Byers reference that would anticipate, or render obvious, claim 29 as amended.

Based upon the included amendments, it is respectfully submitted that the present claims be examined and allowed. Applicants submit that each and every amendment herein, and throughout the prosecution of the present application is fully supported by the specification as originally filed, and that no new matter has been added.

In view of the foregoing, Applicants believe that claims 21-29 present allowable subject matter and allowance is respectfully requested. If any impediment to the allowance of these claims remains after consideration of the above remarks, and such impediment could be alleviated during a telephone interview, the Examiner is invited to telephone the undersigned attorney at (801) 566-6633, or Bradley Haymond of Hewlett-Packard at (541) 715-0159, so that such issues may be resolved as expeditiously as possible.

Please charge any additional fees except for Issue Fee or credit any overpayment to Deposit Account No. 08-2025.

Dated this 23 day of Dec, 2002.

Respectfully submitted,

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AMENDMENT (marked-up version of claims)

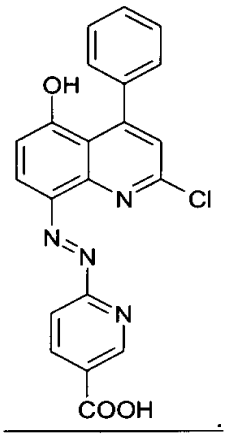
Please cancel claims 11-20 without prejudice.

Please add new claims 21-29 as follows:

21. (New) A photo-quality image on a substrate comprising:

(a) a porous media substrate; and

(b) an image on the substrate provided by an aqueous ink-jet ink comprising an ink vehicle, and a nickel metallized dye having a ligand to nickel molar ratio of 2:1, wherein said ligand has the structure:

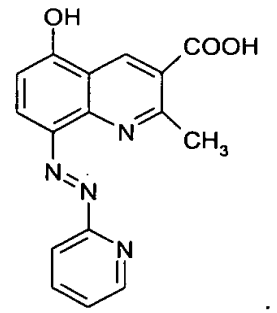


22. (New) A photo-quality image on a substrate as in claim 21, wherein the aqueous ink-jet ink is prepared by raising the pH of the ink with a pH adjuster to dissolve the nickel metallized dye, followed by lowering the pH to form the final ink product.

23. (New) A photo-quality image on a substrate comprising:

(a) a porous media substrate; and

(b) an image on the substrate provided by an aqueous ink-jet ink comprising an ink vehicle, and a nickel metallized dye having a ligand to nickel molar ratio of 2:1, wherein said ligand has the structure:



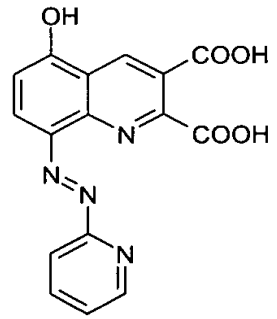
;

wherein the aqueous ink-jet ink is prepared by raising the pH of the ink with a pH adjuster to dissolve the nickel metallized dye, followed by lowering the pH to form the final ink product.

24. (New) A photo-quality image on a substrate comprising:

(a) a porous media substrate; and

(b) an image on the substrate provided by an aqueous ink-jet ink comprising an ink vehicle, and a nickel metallized dye having a ligand to nickel molar ratio of 2:1, wherein said ligand has the structure:

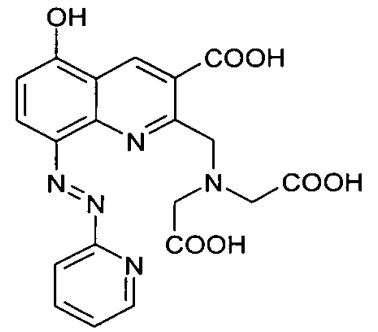


wherein the aqueous ink-jet ink is prepared by raising the pH of the ink with a pH adjuster to dissolve the nickel metallized dye, followed by lowering the pH to form the final ink product.

25. (New) A photo-quality image on a substrate comprising:

(a) a porous media substrate; and

(b) an image on the substrate provided by an aqueous ink-jet ink comprising an ink vehicle, and a nickel metallized dye having a ligand to nickel molar ratio of 1:1, wherein said ligand has the structure:

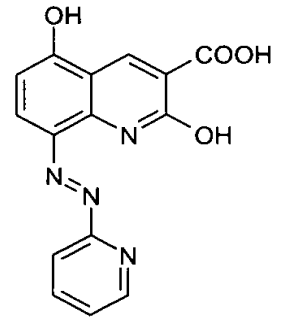


26. (New) A photo-quality image on a substrate as in claim 27, wherein the nitrogen and the two carboxyl groups of the quinolinol group are bound to the nickel, satisfying the coordination number of the nickel.

27. (New) A photo-quality image on a substrate comprising:

(a) a porous media substrate; and

(b) an image on the substrate provided by an aqueous ink-jet ink comprising an ink vehicle, and a nickel metallized dye having a ligand to nickel molar ratio of 1:1, wherein said ligand has the structure:



28. (New) A photo-quality image on a substrate as in claim 29, wherein the ink-jet ink includes a small amount of a pyridine solvent to improve the solubility of the nickel metallized dye in the ink-jet ink.

29. (New) A photo-quality image on a substrate comprising:

(a) a porous media substrate; and

(b) an image on the substrate provided by an aqueous ink-jet ink comprising an ink vehicle, and a nickel metallized dye having a ligand to nickel molar ratio of 2:1, wherein said ligand has the structure: